

rigid conduit 62 and the flexible conduit 64. At elevated temperatures, the material of the rigid conduit 62 flows into the micro-pores of the material of the flexible conduit 64. The rigid material has a lower melting point than the flexible material.

The rigid conduit 62 and attached flexible conduit 64 are placed in the myocardium 32, 232 with the lower end 74 protruding into the left ventricle 40. (See generally, FIG. 1) The implant 60 thus defines an open blood flow path 68 having end 74 in blood flow communication with the left ventricle. A second end 70 of the blood flow path 68 communicates directly with the lumen of the coronary vessel lying at an exterior of the heart wall. (See generally, FIG. 1) To bypass an obstruction in a coronary artery, the vascular end 78 of the flexible conduit 64 may be attached to, or lie within, the artery in any suitable manner.

In the particular embodiment illustrated, a plurality of discrete rigid rings 80 are provided along the length of the flexible conduit 64. Preferably, the rings 80 are LDPE each having an interior surface heat bonded to an exterior surface of the flexible conduit 64. The rings 80 provide crush resistance. Between the rings 80, the flexible conduit 64 may flex inwardly and outwardly to better simulate the natural compliance of a natural blood vessel. By way of a further non-limiting example, the discrete rings 80 could be replaced with a continuous helix.

As discussed more fully in U. S. Pat. No. 5,984,956, the rigid conduit 62 may be provided with tissue-growth producing material 82 adjacent the upper end of the conduit 62 to immobilize the conduit 62 within the myocardium 32. The material 82 surrounds the exterior of the conduit 62 and may be a polyester woven cuff 83 or sintered metal to define pores into which tissue growth from the myocardium may occur.

A further embodiment of the invention is described with reference to FIGS. 2, and 8. In FIG. 2 an implant 90 is shown including a straight elongate, generally cylindrical tube, scaffold, or conduit 92. The conduit 92 may be formed of titanium or other rigid biocompatible material such as pyrolytic carbon or may be titanium coated with pyrolytic carbon. Preferably, an interior wall 94 of the conduit 92 is polished to a high degree of polish to reduce the likelihood of thrombus formation on the wall. The material of the conduit 92 is preferably a rigid material in order to withstand contraction forces of the